

surgery as for their non-pregnant counterparts, although if they are in the second half of pregnancy they should be nursed in the left lateral position to prevent supine hypotension caused by the weight of the pregnant uterus on the inferior vena cava.

The fetus should be monitored by cardiotocography, probably for four hours.<sup>12</sup> Abnormalities of the fetal heart rate usually permit early diagnosis of a placental abruption, which in many cases is not accompanied by vaginal bleeding. In the acute phase ultrasonographic examination will not usually be helpful until the abruption is clinically obvious, but mothers find ultrasonography reassuring. Delayed abruption may occur four to five days after the accident,<sup>13</sup> which suggests that patients should probably be kept in hospital for five days.

Other effects on the pregnancy may be preterm labour, premature rupture of the membranes, and fetomaternal haemorrhage. Haemorrhage should be sought with a Kleihauer test, and if the patient is rhesus negative anti-D gammaglobulin should be given. Any fetal anaemia resulting from fetomaternal haemorrhage is rarely severe enough to threaten the fetus. Pelvic fractures in pregnancy may be associated with substantial retroperitoneal bleeding, causing hypovolaemic shock, or injuries to the urinary tract or uterus. In the absence of severe deformity delivery through a recently fractured pelvis is not usually accompanied by serious complications. There is little or no evidence on the effect of seat belts on the occurrence of these complications.

Strong evidence therefore exists to support the use of seat

belts in pregnancy; they should be worn over and under the bump. There is also evidence that health care professionals do not routinely educate pregnant women in the correct use of seat belts and that some carers give dangerous advice. Finally, there is evidence that when pregnant women receive advice from trained instructors they are more likely to wear seat belts.<sup>14</sup>

MALCOLM PEARCE

Consultant Obstetrician,  
St George's Hospital,  
London SW17 0QT

- 1 Seat belt regulations retained. *BMJ* 1986;292:286.
- 2 McCoy GF, Johnstone RA, Nelson IW, Duthie RB. Facial injuries to restrained drivers caused by steering wheels. *Lancet* 1988;iii:456.
- 3 Gallup BM. The assessment of facial injury to fully restrained drivers through full-scale car crash testing. *J Trauma* 1987;27:711-8.
- 4 Campbell BJ. Safety belt injury reduction related to crash severity and front seat position. *J Trauma* 1987;27:733-9.
- 5 Stuart GCE, Harding PGR, Davies EM. Blunt abdominal trauma in pregnancy. *Can Med Assoc J* 1980;122:901-5.
- 6 Crosby WM, Costiloe JP. Safety of lap-belt restraint for pregnant victims of automobile collisions. *N Engl J Med* 1971;284:632-6.
- 7 Griffiths M, Usherwood MCD, Reginald PW. Antenatal teaching of the use of seat belts in pregnancy. *BMJ* 1992;304:614.
- 8 American College of Obstetricians and Gynecologists. *Automobile passenger restraints for children and pregnant women*. Washington, DC: ACOG, 1983. (Technical Bulletin 74.)
- 9 Hammond TL, Mickens-Powers BF, Strickland K, Hankins DV. The use of automobile safety restraint systems during pregnancy. *J Obstet Gynecol Neonat Nursing* 1990;19:339-43.
- 10 Crosby WM, King LC, Stout LC. Fetal survival following impact: improvement with shoulder harness restraints. *Am J Obstet Gynecol* 1972;112:1101-4.
- 11 Chetcuti P, Levene MI. Seat belts: a potential hazard to the fetus. *J Perinat Med* 1987;15:207-9.
- 12 Pearlman MD, Tintinalli JE, Lorenz RP. Blunt trauma during pregnancy. *N Engl J Med* 1990;323:1609-13.
- 13 Higgins SD, Garite TJ. Late abruptio placenta in trauma patients: indications for monitoring. *Obstet Gynecol* 1984;63:10S.
- 14 Chang A, Magwene K, Frand E. Increased use of safety belts following education in childbirth classes. *Birth* 1987;14:148-52.

## Missing women

### *Social inequality outweighs women's survival advantage in Asia and north Africa*

In Europe and North America women tend to outnumber men. For example, in the United Kingdom, France, and the United States the ratio of women to men exceeds 1.05. In many Third World countries, however, especially in Asia and north Africa, the female:male ratio may be as low as 0.95 (Egypt), 0.94 (Bangladesh, China, and west Asia), 0.93 (India), or even 0.90 (Pakistan). These differences are relevant to an assessment of female inequality across the world.<sup>1-6</sup>

Everywhere about 5% more boys than girls are born. But women are harder than men and, given similar care, survive better at all ages—including in utero.<sup>7</sup> There are other causes for this preponderance of women—for example, some remaining impact of the deaths of men in the last world war and more cigarette smoking and violent deaths among men. But even taking these into account, women would still outnumber men if given similar care.<sup>7</sup>

Social factors must therefore explain the low female:male ratios in Asian and north African countries. These countries would have millions more women if they showed the female:male ratios of Europe and the United States.<sup>4</sup> Calculated on this basis, China is missing more than 50 million women.

Using European or American ratios may not, however, be appropriate. Because of lower female mortality in Europe and America the female:male ratio rises gradually with age. A lower ratio would therefore be expected in Asia and north Africa partly because of a lower life expectancy and higher fertility rate. There are several ways of adjusting for this. One is to adopt the female:male ratios of sub-Saharan Africa, where there is little female disadvantage in terms of relative mortality but where life expectancy is no higher and fertility

rates no lower than those in Asia and north Africa. Using the sub-Saharan ratio of 1.022 yields an estimate of 44 million missing women in China, 37 million in India, and a total of more than 100 million worldwide.<sup>5</sup>

Using population models based on Western demographic experience it is possible to estimate roughly how many women there would be without any female disadvantage in survival, given the actual life expectancy and the fertility rates in these countries. Coale estimates 29 million missing women in China, 23 million in India, and an overall total of 60 million for selected countries.<sup>6</sup> Though lower, these numbers are still enormous.

Why is overall mortality for females higher than that for males in these countries? Consider India, where age specific mortality for females consistently exceeds that for males until the fourth decade. Although the excess mortality at childbearing age may be partly due to maternal mortality, obviously no such explanation is possible for female disadvantage in survival in infancy and childhood. Despite occasional distressing accounts of female infanticide, this could not explain the extra mortality or its age distribution. The comparative neglect of female health and nutrition, especially—but not exclusively—during childhood, would seem the prime suspect. Considerable direct evidence exists of neglect of female children in terms of health care, admission to hospitals, and even feeding.<sup>8,9</sup>

Even though the position in India has been more extensively studied than that in other countries, similar evidence of relative neglect of the health and nutrition of female children may be found in other countries in Asia and north Africa. In China some evidence suggests that the extent of neglect may

have increased sharply in recent years, particularly since compulsory restrictions on the size of families were introduced in some parts of the country in the late 1970s. There are also some new, ominous signs in China, such as a substantial increase in the reported ratio of male to female births—quite out of line with the rest of the world. It could quite possibly indicate “hiding” of newborn female children (to avoid the rigours of compulsory restriction on the size of the family), but it could, no less plausibly, reflect a higher female infant mortality—whether or not induced (with new births and new deaths both going unreported).

What causes the relative neglect of females, and how can it be changed? Possible influences include traditional cultures and values. But some economic links have also emerged, and some connections between economic status and social standing have been identified. For example, the ability to earn an outside income through paid employment seems to enhance the social standing of a woman (which is the case in sub-Saharan Africa). This makes her contribution to the prosperity of the family more visible. Also, being less dependent on others, she has more voice. The higher status of women also affects ideas on the female child’s “due.” Secondly, education, especially female literacy, may make a substantial difference. Thirdly, women’s economic rights (for example, land ownership and inheritance) may be important.<sup>10 11</sup> Public policy can influence all of these.

The Indian state of Kerala provides an illuminating exception to the prevailing experience. It has the most developed school education system in India, which dates from the early nineteenth century, with strongly supportive state policies in the “native kingdoms” of Travancore and Cochin.<sup>5</sup> Adult

literacy rate is now over 90%. Property inheritance passes through the female line for an influential part of the community (the Nairs). Many women participate in “gainful” economic activities. Kerala also has an extensive health care system, which has been built up through public policy. Even though Kerala is one of the poorer Indian states, life expectancy at birth there now exceeds 73 years for women and 67 years for men.

The female:male ratio of the Kerala population is now around 1.04—similar to that in Europe and America (and most unlike that in the rest of India, Bangladesh, Pakistan, China, west Asia, and north Africa). It seems that the “missing women” may be rescuable, after all, by public policy.

AMARTYA SEN

Lamont University Professor,  
Harvard University,  
Cambridge, Massachusetts 02138,  
USA

- 1 Sen AK. *Resources, values and development*. Oxford: Blackwell, 1984:346-85.
- 2 Kynch J. How many women are enough? Sex ratios and the right to life. In: Gauhar A, ed. *Third world affairs 1985*. London: Third World Foundation, 1985:156-72.
- 3 Harriss B, Watson E. The sex ratio in south Asia. In: Momson JH, Townsend J, eds. *Geography of gender in the Third World*. London: Butler and Tanner, 1987:85-115.
- 4 Sen AK. Women’s survival as a development problem. *Bulletin of the American Academy of Arts and Sciences* 1989;43:14-29.
- 5 Dreze J, Sen AK. *Hunger and public action*. Oxford: Clarendon Press, 1989:50-9, 221-5.
- 6 Coale AJ. Excess female mortality and the balance of the sexes in the population: an estimate of the number of “missing females.” *Population and Development Review* 1991;17:517-23.
- 7 Waldron I. The role of genetic and biological factors in sex differences in mortality. In: Lopez AD, Ruzicka LT, eds. *Sex differences in mortality*. Canberra: Department of Demography, Australian National University, 1983.
- 8 Chen L, Huq E, D’Souza S. Sex bias in the family allocation of food and health care in rural Bangladesh. *Population and Development Review* 1981;7:55-70.
- 9 Sen AK. *Commodities and capabilities*. Amsterdam: North-Holland, 1985:81-104.
- 10 Boserup E. *Women’s role in economic development*. London: Allen and Unwin, 1970:15-154.
- 11 Sen AK. Gender and cooperative conflict. In: Tinker I, ed. *Persistent inequalities*. New York: Oxford University Press, 1990:123-49.

## On your bikes

### *Doctors should be setting an example*

Urban cyclists are a heroic and selfless breed: they would rather brave congestion and smog than add to them. Seen by motorists as pests, they have been in decline since the 1950s. But this week, with the publication of the BMA’s report on cycling, they and their environment have found a new and important champion.<sup>1</sup>

The health benefits of cycling are well documented. Regular physical exercise delays postmenopausal osteoporosis and lowers cardiac morbidity and mortality—perhaps by reducing body fat and blood pressure and increasing the ratio of high density to low density lipoproteins. It may also improve mental health and all cause mortality.<sup>1</sup> As a form of aerobic exercise cycling is ideal; it makes use of the large limb muscles without putting strain on the joints. The energy requirements of cycling 6.5 km each way to work at a speed of about 20 km/h are equivalent to those of 10 minutes’ wrestling, over half an hour’s squash, 50 minutes’ tennis singles, an hour’s skating, a brisk 4 km walk, or 24 holes of golf.<sup>2</sup> Studies have shown that civil servants who cycled regularly experienced half the expected number of coronary events,<sup>3</sup> and lifelong cyclists over the age of 75 had a 10-fold reduction in the incidence of ischaemic heart disease.<sup>4</sup>

But being cardiovascularly and mentally fit is of little use if you are knocked off your bicycle by the next car turning left. For cycling to be truly beneficial to cyclists instead of just to their fellow urbanites it also has to be safe. This cycling is patently not, and the danger has increased over the past 40 years. Between 1952 and 1987 deaths per billion kilometres

travelled by cycle in Britain almost doubled.<sup>5</sup> Added to the risk of injury is the fear of injury, with the result that, according to the London Cycling Campaign, one million people who would like to cycle in the capital have been deterred. Traffic fumes, noise, and congestion are also to blame.

Cycling is now taking on all the signs of an unsafe activity. The carefree, hair free child in the butter commercial has become a fully armoured vehicle sporting helmet, reflective clothing, and face mask. These are valid forms of protection and are endorsed by the BMA, with the caveat that the main thing in their favour may be that they draw attention to the problems of road safety and air pollution. But they have no effect on the cause of the problems. They hamper the cyclist while leaving the motorist, the source of the danger and the dirt, unrestrained.

Almost everyone can cycle—99% of men and 87% of women in a 1989 Mintel survey<sup>1</sup>—but progressively fewer do. Annual sales of bicycles in Britain are equivalent to car sales, but while 94% of cars are used every day only one in four bicycles is used in a typical week.<sup>1</sup> In the 1950s 10% of all travel by mechanical means was by bicycle, mostly for commuting to work. Now the figure is 1%, mostly for leisure.<sup>6</sup>

And as more people take to their cars to avoid the increasingly hostile urban environment a vicious cycle develops. More cars mean more fumes and accidents, which deters more people from cycling, which means more cars. Town planners fuel the upward spiral, building motorways